

TURF TALK

Summer 2017

OUTSIDE IN SPECIAL

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Disease Control Outside and In

The launch of Instrata Elite gives a powerful new combination of contact and systemic properties - for reliable turf disease control on the outside leaf surface, and inside the plant.

With both curative and protectant activity, Instrata Elite combines the new entirely active ingredient for turf, difenoconazole, with the outstanding performance of fludioxonil.

Together, the complementary actives target different stages of disease life cycles for flexible application timing.

Syngenta Technical Manager, Marcela Munoz, highlighted extensive trials have shown Instrata Elite is highly effective against key turf foliar diseases, to protect plant health and playing surface quality. Importantly, the new approval gives the opportunity for two applications per year.

"The unique properties of Instrata Elite rapidly bind the actives onto the leaf wax layer," explained Marcela. "The fludioxonil component stays locked into the leaf wax to provide a protective contact coating that stops disease spores germinating and prevents infection of the plant."



Instrata Elite binds onto the leaf surface to stop disease infection getting into the leaf.



Active that dissipates into the leaf can target disease mycelia in the leaf, to stop attacks developing.

"At the same time, the difenoconazole component immediately starts to flow from the leaf wax into the leaf. It targets disease already active in the leaf, providing early curative activity and preventing symptoms breaking out," she added. The flow of difenoconazole from the leaf wax reservoir provides systemic protection throughout the plant, to protect new growth and ensure lasting results.

Crucially, with Instrata Elite safely locked onto the leaf wax within 30 minutes of application, it is unaffected by rain or irrigation wash-off ensuring reliable results.

Marcela highlighted that two applications of Instrata Elite per year will give greater flexibility to effectively target disease for longer through difficult high risk periods. Importantly, the new approval covers golf and amenity turf, along with sports pitches and stadia, she added.

Instrata Elite had passed all environmental assessment tests through the approval process.

The proven and reliable performance of Instrata Elite has been shown by over 60 trials across nine European countries – including STRI, Syngenta and on golf courses across the UK.

Instrata Elite targets:

- disease spores before they can germinate
- disease hyphae on the surface to stop infection getting into the leaf
- disease mycelia inside the leaf to stop disease development

STRI has been successfully using Instrata Elite in disease trials over the last two years, added Marcela.



Contact
Systemic

Curative
Protectant

Protection Outside and In

COMBINED CONTACT AND SYSTEMIC ACTION IN ONE



TWO-TIME TARGET



Syngenta UK Business Manager, Daniel Lightfoot, advocates Instrata Elite will fit perfectly into a proactive fungicide programme.

“Instrata Elite could be used throughout the year,” he said, “but the research and user trials experience indicate its unique properties and strengths typically match the demands for disease control from mid to late autumn, and through early spring.

“Used as a planned part of an Integrated Turf Management approach there is now the real chance to stay ahead of disease and maintain better turf quality through key periods of the season.

He advised that for best protection of turf quality, Instrata Elite should be applied before visible symptoms are evident, through to first signs of infection.

“Optimum timing will prevent disease infection getting into the leaf,” he said. “But with Instrata Elite there is still the chance for curative activity on mycelium in the leaf to stop disease before visible damage is done and minimise stress on the plant.

“Targeting disease at more points through the life-cycle gives greater flexibility in application timing to hit infection.”

Daniel advocated the use of the GreenCast website information, indicator greens and historic experience to highlight risk periods to devise an appropriate fungicide programme strategy and to tailor specific application timing.

“The advantages of Instrata Elite and the introduction of a new fungicide active for turf means it will have an integral role in every fungicide programme,” he advised. “It will have a crucial function in an ITM approach to deliver sustainable long-term improvements in turf quality.”

RESISTANCE MANAGEMENT

The two actives in Instrata Elite are from entirely different FRAC fungicide groups and work in different ways on different stages of disease life-cycle.

	FRAC class	
Difenoconazole	G1 - DMI-fungicides (DeMethylation Inhibitors)	3
Fludioxonil	E2 - PP-fungicides (PhenylPyrroles)	12

This significantly reduces the risk of fungicide resistance developing. There is no known turf disease resistance to either components of INSTRATA ELITE.

Used as part of a proactive fungicide programme, in conjunction with other Syngenta products with alternative modes of action, the great effects of INSTRATA ELITE can be preserved for the future.

Instrata Elite

Instrata Elite has been widely tested by Syngenta R&D and independent trials in the UK and throughout Europe. A group of greenkeepers across the UK have also had a chance to try it on their courses and see how Instrata Elite can be incorporated into proactive fungicide programmes.



PARKLAND PROTECTION

In Berkshire, Sand Martins' Course Manager, Matt Short,

has adopted a strategy of front-loading his fungicide programme with strong options that can safely protect turf through seasonal high disease pressure and variable weather conditions in late autumn.

Instrata has been a key part of his armoury at that timing, but with only one application available, he was keen to try out two applications of the new Instrata Elite.

"If we can keep the surfaces clean and disease free through until after Christmas, then surfaces typically to stay good through to the spring," reported Matt. "We have had good experience with Medallion TL used in the winter months, so were confident that the fludioxonil would be effective. Coupled with a systemic active it appeared to fit the variable weather conditions with intermittent growth."

He pointed out that it was clearly apparent that where he had used the Instrata Elite the greens remained absolutely clean, when some of the approaches and collars that were not treated were smashed with disease.

Matt's trial report highlighted that *Fusarium* was active on all greens in late October, and spreading to affect large parts of the surface. Mowing height was raised from four mm, with grooming twice a week, up to 4.5 mm in late October and five mm in early November. Taking off the stress of low cutting, in combination with iron application, and Instrata Elite application to stop disease, aided recovery, such that by mid-November all the effects of *Fusarium* scars had grown in and no signs of disease – with players' reporting greens quality the best ever for the season.



HEATHLAND QUALITY

James Norris, Head Greenkeeper at the

Hampshire heathland, Blackmoor Golf Club, reported initial recovery from his autumn renovations were good, but in early November he began to see the first signs of disease bubbling up on some greens, and went in immediately with Instrata Elite.

"The infection very quickly cleared up, and green condition stayed pretty much clean for six weeks, right through to 20 December. We may have gone longer, but with some slightly increasing incidence of disease and the Christmas break, we wanted to be safe," he added.

James' trial record sheets showed around 2% disease infection at the time of Instrata Elite application, which reduced to 1% a week after application. Sward density and colour remained consistent throughout the trial period. Disease began to increase, to 3 to 5% in December, when he retreated the greens.

A review of GreenCast historic disease pressure for the course highlighted a huge spike in disease risk on 6 November, which precisely coincided with James starting to see early symptoms a few days later and the application of Instrata Elite.

An application, when the high disease risk peak had been forecast, could have prevented even the first visual effects of disease, and alleviated disease stress. However, James' early intervention and the curativity of difenoconazole on the first signs of disease prevented further damage and protected clean leaf from new infection.

NORTHERN POWERHOUSE

High disease pressure in the autumn of 2016 saw *Microdochium* patch present on all putting surfaces at Headingley Golf Club, reported Head Greenkeeper, Andy Stanger.

However, following an application of Instrata at the first available opportunity, by the end of October the scarring had grown out and no signs of infection were observed when his Instrata Elite trial commenced in November.

Andy's trial assessments showed there were no signs of discoloration from phytotoxicity with the Instrata Elite treatments. All treated putting surfaces continued to remain clean of disease, but by early December he reported there were clear signs of infection on the untreated surrounds.

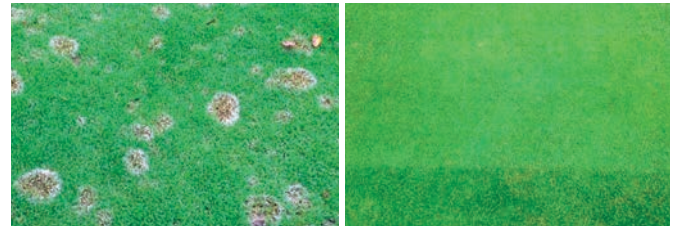
The pattern of development on the untreated areas continued, whilst the turf colour and coverage, along with complete disease control, on the treated greens remained constant throughout - when a second application was made on 20 December.

"There was very high disease pressure at times throughout the trial and large patches of *Microdochium* patch were observed directly adjacent to treated areas," he reported.

Despite this intense disease pressure and clear outbreaks on

untreated areas, the Instrata Elite treated greens showed no visible signs of infection.

He added that through to the completion of the preventative two-spray Instrata Elite trial, at the end of January, there were no visible signs of disease across the course.



Headingley untreated tee area

Instrata Elite treated green



Read full details of Matt, James and Andy's integrated disease management approaches on Greencast

Getting the Best from Instrata Elite



AUTUMN



WINTER



EARLY
SPRING

BannerMaxx
OR
Headway
SYSTEMIC

Instrata
CONTACT*
AND
SYSTEMIC

Instrata Elite
Fungicide
CONTACT*
AND
SYSTEMIC

MedallionTL
CONTACT*

Instrata Elite
Fungicide
CONTACT*
AND
SYSTEMIC

PROACTIVE ACTION

The combination of curative and protectant properties give greater flexibility in application timing for use in a proactive fungicide programme.

Instrata Elite is ideally placed for use in the autumn, targeted to tackle high disease pressure, and in the early spring to protect an early clean start for growth.

EXAMPLE PROGRAMME

Two applications of Instrata Elite can be made per season, on all amenity surfaces including golf courses and sports pitches.

RAINFEST PROTECTION

SAFELY LOCKED ONTO THE LEAF WAX, WITHIN 30 MINUTES OF APPLICATION INSTRATA ELITE IS UNAFFECTED BY RAIN OR IRRIGATION WASH-OFF.



THE OUTSIDE IN ON DISEASE PROTECTION



Leading STRI turf disease pathologists, Tom Young and Dr Ruth Mann, highlight their experiences of Instrata Elite and how to best protect turf quality.

Diseases seem to have been more widespread and severe over the last couple of years. Many Turf Managers have struggled to completely control outbreaks during weather periods particularly conducive to infection and spread.

As soon as the pathogen becomes established in the turf, it becomes very difficult to completely eradicate that outbreak, leading to reoccurrence time and time again from the affected areas.

In some areas of the UK, 2016 winter was probably the one of the worst years for widespread severe disease outbreaks lasting many weeks.

Such high disease pressure led to the best set of fungicide trials at STRI. If the test fungicides worked in the extremely difficult conditions, then you can be confident that you will be rewarded with clean, disease free turf surfaces.

One essential element in achieving optimal disease management is applying the right active ingredients at appropriate times.

The aim is to ensure pathogens are not infecting your sward before you know it, and leaving you to firefight once symptoms become visible.

One of the most crucial factors in successful control of *Microdochium nivale* in turfgrass is the optimal timing of fungicide treatment. Most fungicidal active ingredients work best when applied preventatively or at a very early curative stage, rather than applied retrospectively at a late curative/eradicator stage when disease is fully established.

TARGETED TIMING

PREVENTATIVE application should occur when weather conditions conducive to pathogen infection and spread are occurring and there is a high chance that spores will be active on the leaf, but before the pathogen has actually infected the grass plant. Ironically, preventative application occurs when the turf looks good, with no disease symptoms visible. Preventative control, therefore, stops the pathogen before there is any loss in turf quality.

Experience of disease occurrence on your turf, as well as frequent inspection of indicator areas and consultation of Greencast website, helps to inform preventative fungicide application timing.

CURATIVE application occurs when the pathogen has germinated or just started to grow into the grass plant. Curative activity really ends at the very first sign of disease.

Therefore, it should be remembered that in most cases this is the final timing for optimal control with most currently available turf fungicides.



1. Preventative control; no symptoms currently visible but weather conditions highly conducive to *Microdochium nivale* infection and spread.

2. First sign of *Microdochium* patch; 'watersoaked' appearance of the affected spots on grass surface. Start of curative control.



3. Late curative stage; symptoms of *Microdochium* patch are becoming more obvious.

4. Eradicator stage; *Microdochium nivale* is sporulating and spreading.



Ruth Mann



Tom Young

ERADICANT application occurs from when disease symptoms are observed until spores are produced and the pathogen is spreading to infect new plants (Plate 4). It is very difficult for currently available turf fungicides to optimally control disease at this point.

Also, even after the pathogens is controlled, the affected patch will need time to recover, meaning scars may last for many weeks and carry a constant risk of reinfection from pathogen growing saprophytically in the dead grass in scars.

DYNAMIC PICTURE

In practice, disease development in any turf sward highly dynamic; when symptoms are first visible on one plant or area, there's a very high chance other surrounding plants will be infected, but not yet showing symptoms.

That's where curative activity will have the greatest potential to stop disease progressing further in those plants that have not yet developed symptoms.

Treatment at the later stage of curativity - when symptoms are visible - can still have a beneficial effect in limiting disease development, and preventing symptoms breaking out in other plants.

INSTRATA ELITE RESULTS

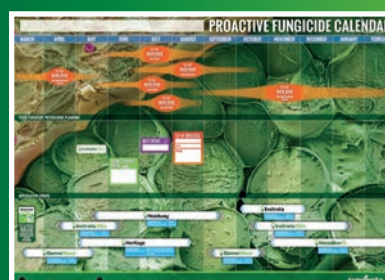
Instrata Elite has been trialled at STRI over the past two years. The most recent trials focused on application of Instrata Elite at three different stages of *Microdochium nivale* development: Preventative, Early curative and Late curative.

The trials were conducted between October 2016 and March 2017 on an area of golf green turf, on a sandy loam rootzone located at STRI's research facility at Bingley in Yorkshire. Levels of disease were extremely high during the 2016/7 winter, with diseases levels of up 60% coverage recorded in untreated plots.

The application of Instrata Elite significantly reduced disease pressure when applied at all three stages of disease development.

Preventative and very early curative provided excellent control of *Microdochium* patch in these trials. Although Instrata Elite did reduce the area affected by *Microdochium* patch when applied at a late curative stage (Figure 4), it was not as effective as application at an earlier stage of development, leading to some disease scars being present.

In all trials, at all fungicide application timings, Instrata Elite was as effective as industry standard fungicides. Therefore, these results demonstrated that the optimal timing for Instrata Elite within a fungicide programme to control *Microdochium* patch is at a preventative or early curative stage, although significant reduction in disease will still occur if applied at a late curative stage.



Poster Planning

To help you develop a proactive fungicide programme for your course we have created a new wall poster and planning guide. Using the information provided, in conjunction with Greencast and the GreenCast Turf App, you can set out a plan to tackle the key challenges through the year, and then refine and amend to specific seasonal pressures.

Year on Year the Turf Disease Planner will build into a essential tool to help manage turf more effectively.

To get your copy attend one of the Syngenta/ICL Turf Briefings, or email golf.syngenta@syngenta.com with your details.



SUSTAINABLE FUTURE

Syngenta Marketing Lead for Europe, Rod Burke, explains why key agronomy decisions by greenkeepers can have a highly positive role in both the environmental and economic sustainability of golf course management.

Golf courses deliver an extremely positive environmental role. Even where greens and tees are intensively managed to provide the quality playing surfaces demanded by today's golfers, that typically accounts for less than 5% of the golf course area - and there is still plenty of room to actively manage habitats for ecological gain, as ably demonstrated by our enthusiastically supported Operation Pollinator.

EFFICIENT RESOURCE USE

Furthermore, greenkeepers can integrate turf management products into their programmes that can help to optimise the use of inputs and improve long-term sustainability. With water a current hot topic, for example, the use of Qualibra wetting agent can help to enhance utilisation of irrigation by holding water deeper in the root zone for more efficient total uptake by plants – whilst also assuring firmer surfaces for better playing performance.

Qualibra and Primo Maxx II have also been shown to significantly enhance plant root structures, ensuring they can make better use of water and nutrient inputs. Then you add cost-saving factors such as up to 40% reduced mowing of turf on a Primo Maxx programme, and Club's can significantly cut their carbon footprint.

The Syngenta mantra for all plant protection products, in agriculture and amenity use, is 'As little as possible; As much as necessary' and a genuine desire to develop sustainable best use practices.

Every greenkeeper has to find the right balance for what they need to do to maintain player satisfaction in their individual club situation – there's no one size fits all.

BETTER NEW PRODUCTS

Although some older actives are being lost and withdrawn, we do have new product introductions that are both more effective in terms of disease control and ease of use for greenkeepers, whilst also having a significantly lower active ingredient loading on the environment.

The evolution of new R&D technology can be a positive enhancement for the sustainable turf industry.

This year, for example, Syngenta has launched Instrata Elite with a new active ingredient for turf, which can effectively replace the contact activity that is being lost with older fungicide technology – as well as bringing new attributes that will further enhance turf quality protection.

These new products have been fully approved for their environmental impact and tested to the very highest latest standards. They are also launched with a far greater level of support and targeted understanding to help greenkeepers deliver consistently better results.

TARGETED APPLICATION

Using tools such as GreenCast for disease risk prediction, and a resource for Integrated Turf Management that complements good cultural controls with optimised timing of fungicide applications,



YOUR CHANCE TO WIN IN THE GOLF ENVIRONMENT AWARDS

Operation Pollinator is now an integral part of the internationally renowned Golf Environment Awards, organised by the STRI and championed by Justin Rhodes.

The Operation Pollinator Award will be entered and judged at the same time as other leading Golf Environment Awards, with the presentation at a spectacular dinner night at BTME 2018.

Enter the Awards on line at:
www.golfenvironmentawards.com

for example, has demonstrated that it is possible to achieve consistently higher turf quality from fewer fungicide applications.

Initiatives such as the Sprayer Operator of the Year promote good practice for all spray applications, which focuses best practice to achieve better results from less input, alongside environmental protection and operator safety to protect the people who work and use the course.

ECONOMIC VIABILITY

Attracting new players to the game is also an essential element of building economically viable and sustainable Clubs and a stronger industry for the future. That is why Syngenta has invested so much in its pioneering player survey work and the love.golf initiative, to encourage more women and children to take up the game.

Ultimately, sustainability has to include business viability – which means ensuring player satisfaction that keeps them, and their money, coming back.

Without the ability to provide players with the ever greater turf quality they increasingly demand, the industry will see further erosion of customers to other sports. Greenkeepers have an essential role in using the tools they have available to help their Club's to deliver environmental, economic and socially sustainable businesses.

Operation Pollinator Winner

Operation Pollinator pioneer and John O'Gaunt Golf Club greenkeeper, Steve Thompson, has been rewarded with winning the Operation Pollinator Award for 2017, presented by Caroline Carroll of Syngenta (right) and STRI Ecologist, Sophie Vukelic.





Water Conservation

Situated in the driest corner of England, and having just experienced the most severe drought season, Royal Cinque Ports' Course Manager, James Bledge, is committed to making the better use of his available water resource.



James Bledge

And that's been focused by a decision to reduce the Club's water extraction licence for irrigation by a quarter, down to just 30,000 cu m. James highlighted he needs to take every contingency in case of another dry season, when areas of the fairways frequently burn out and turf quality can suffer severely.

This year, he has turned to the new wetting agent technology of Qualibra, which he believes will fulfil the Club's demands to optimise the use of water resources, and meet his specific agronomic challenges, as well as improving playing surface quality for members.

Loss of grass cover on areas of the fairways in dry conditions every summer has affected playability, and has the knock-on effect for rejuvenation time and cost. The RCP fairways typically have just 100 mm of soil over pure sand, so for any moisture to be utilised it has to be held in that root zone.

EXTREME CHALLENGES

Furthermore, the extreme undulating fairways and complex greens that characterise the unique experience of playing RCP pose another challenge for irrigation. The need is to get rapid water penetration and retention on the crowns and slopes, that's crucial to maintain consistent playability.

On the greens, speed is still the driving factor for members'. James reported increased actions to reduce thatch levels on greens and a programme of top dressing to improve firmness.

But to maintain good ball roll speed and to avoid a build-up of thatch he is adamant that they don't want to hold moisture at the surface.

The further advantage of quickly moving water down from the surface is that it reduces the risk of rapid evaporation and wasteful loss of irrigation water on hot windy days, before plants had the chance to utilise it.

ROOT RETENTION

The greens typically have a good depth of root zone, so James' aim is to improve efficient water utilisation, by irrigating with higher application but less frequently. With the Qualibra treatment applied water is quickly moved down so that the surfaces remain firm, but held in the root zone where it can be better taken up by plant roots.

"We've been using Primo Maxx for the past two seasons, which has really helped to improve the density of turf cover and the consistency of the greens," reported James.

It has also increased root mass, which he believed may have helped to plants to hold on longer through the most stressful time, as well as recover quicker.

The combination of Qualibra and Primo Maxx have the attributes to significantly increase rooting in the future, as well as help to retain the root mass better during a hot dry summer. The combination is also intended to help success with the Club's extensive over seeding programme.

In the extreme coastal environs, fescues can really struggle to survive in high wear areas, such as walk-off points and trolley paths, for example. Having successfully trialed specialist dwarf ryegrass species on the driving range and practice areas, James has now started to introduce them on the course, to improve wall-to-wall grass cover and colour.

SUSTAINABLE FUTURE

The course has repeatedly suffered from dry patch pretty much every year in the past, even with the existing wetting agent programme. This year, by starting the Qualibra programme early, in March, he is hoping to pre-empt problems and minimise effects over the season.



Undulating fairways at Royal Cinque Ports create an extreme challenge for players - and for managing irrigation.



“Royal Cinque Ports takes its environmental responsibilities very seriously and is committed to making the best use of all resources, including water, in maintaining an economically and ecologically sustainable business for its members and visitors,” he added.

“As a greenkeeping team we are looking to use our existing knowledge and experience, along with innovative new technologies and techniques, help to ensure that be achieved.”



Get the Turf Combo



The GreenCast Turf App provides a practical smart phone tool to help golf and amenity turf sprayer operators deliver more timely and accurate applications, as well as automatically recording and storing records of each treatment and decision making.

Used on conjunction with the essential resources on the Greencast website, it's the ultimate greenkeepers' Turf Combo.

It has directly addressed the key concerns of greenkeepers, agronomists and club managers for spray record keeping and improving application techniques.

The Greencast Turf App is available now for free download from the iTunes Store or Google Play.

Key features of the GreenCast Turf App include:

- Compiles complete spray records
- Creates tank-mix recommendations
- Provides application advice
- Quick linked with GreenCast website
- Fully customizable for individual courses



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